

Acc. Nr. **0036526**

Ref. Code: UR 0069

PRIMARY SOURCE: Kolloidnyy Zhurnal, 1970, Vol 32, Nr 1,
pp 37-40

EFFECT OF ASSOCIATION ON THE ORGANIC IONS EXCHANGE

L. V. Dmtrenko, A. Sh. Genedl, G. V. Samsonov

Summary

The sorption of an organic ion-oxytetracycline (OTC) by polysulfostyrene cationites has been studied. The selectivity coefficient of sorption rises with increasing ionic strength of the solution, and the diffusion coefficient decreases both with increasing ionic strength and with rising OTC concentration in external solution. Under certain conditions-for ionite with low swelling ability or with large ionic strength-the sorption isotherms of OTC do not show saturation, but pass through a maximum. The results are discussed in terms of the formation of associates in the ionite phase and in the solution.

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REEL/FRADE

19721374

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1/2 045 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EFFECT OF MICROLOGICAL PROCESSES ON THE ADHESION OF COMPOSITE
FILM MATERIALS -U-
AUTHOR--(03)-GUL, V.YE., GENEL, S.V., FOMINA, L.L.
COUNTRY OF INFO--USSR
SOURCE--MEKH. POLIM. 1970, 6(2), 203-8
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ADHESION, POLYETHYLENE, MICROPHOTOGRAPHY, ELECTRON MICROSCOPY,
COMPOSITE MATERIAL, POLYMER BINDER, PLASTIC FILM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/E07 STEP NO--UR/0374/70/006/002/0203/0208
CIRC ACCESSION NO--AP0140313
UNCLASSIFIED

2/2 045

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140313

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS WAS STUDIED OF BONDING CELLOPHANE (I) WITH POLYETHYLENE (II) UNDER PRESSURE, AS DURING CALENDERING. THE INCREASE OF PRESSURE AND TEMP. DECREASED THE APPARENT VISCOSITY OF II, WHICH PENETRATED THE FISSURES AND PORES OF I. THE RATE OF PORE FILLING DECREASED WITH TIME DUE TO THE INCREASING PRESSURE DIFFERENTIAL. THE PROCESS WAS TREATED THEORETICALLY. ELECTRON MICROSCOPE PHOTOGRAPHS OF I AND II SURFACES, SEPD. AFTER SOME INTERPENETRATION TOOK PLACE, ARE SHOWN. FACILITY: MOSK. TEKHNOL. INST. MYAS. MOLOCH. PROM., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 613.165.6+612.014.44

GENERALOV, A. A., Candidate of Medical Sciences

"Hygienic Assessment of Short- and Long-Wave Ultraviolet Rays According to Their Biological Effects"

Moscow, Gigiyena i Sanitariya, Vol 3, Mar 71, pp 36-38

Abstract: To investigate the erythemogenic and antirachitic effects of short- and long-wave ultraviolet rays, a study was performed on one human subject (erythema) and on 32 healthy and rachitic rats (antirachitic effects). Short-wave ultraviolet rays were generated by a BUV-15 lamp and long-wave rays by an EUV-15 lamp. The results indicate that the C region short-wave ultraviolet rays generated by the BUV-15 lamp are 23 times more effective in inducing erythema than the A and B region ultraviolet rays generated by the EUV-15 lamp. All these rays have an antirachitic effect,. However, the antirachitic effectiveness of short-wave ultraviolet rays is smaller than that of long-wave ultraviolet rays.

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1/2 077 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--BREAKDOWN OF GASES UNDER THE INFLUENCE OF THE LONG WAVE INFRARED
RADIATION OF A CARBON DIOXIDE LASER -U-
AUTHOR--(05)-GENERALOV, N.A., ZIMAKOV, V.P., KOZLOV, G.I., MASYUKOV, V.A.,
RAYZER, YU.P.
COUNTRY OF INFO--USSR
SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(7), 343-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--CARBON DIOXIDE LASER, CHEMICAL PURITY, ARGON, HELIUM, NEON, IR
RADIATION, RUBY LASER, NEODYMIUM LASER, IONIZATION, XENON, LUMINESCENCE,
LASER INDUCED PLASMA
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1133 STEP NO--UR/0386/70/011/007/0343/0346
CIRC ACCESSION NO--AP0123123
UNCLASSIFIED

2/2 077

UNCLASSIFIED

PROCESSING DATE--30OCT79

CIRC ACCESSION NO--AP0123123

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE PULSES (50--250 HZ, 0.3--1.5 MUSEC, PEAK OUTPUT 10 KW) OF THE 10.6-MU RADIATION OF A LASER BASED ON THE CO SUB2-N-HE MIXT., WORKING WITH CONTINUOUS PUMPING, WERE USED TO STUDY THE BREAKDOWN OF AR, NE, HE, AND XE AT LESS THAN 25 ATM. THE BREAKDOWN FREQUENCY WAS GREATER THAN 10 HZ; THE GAS LUMINESCENCE IN THE BREAKDOWN REGION WAS CONTINUOUS. THE FORMS OF THE INCIDENT, PASSING THROUGH THE BREAKDOWN PLASMA, AND REFLECTED (FROM THE PLASMA) PULSES AS WELL AS A VISIBLE LUMINESCENCE OF THE PLASMA WERE RECORDED SIMULTANEOUSLY. THE BREAKDOWN DEVELOPED FOR APPROXIMATELY EQUAL TO 0.1 MUSEC. THE LUMINESCENCE DURATION WAS LONGER THAN THAT OF THE PULSES AND SHORTER BY SIMILAR TO 3 ORDERS THAN THE BREAK BETWEEN THE PULSES. THE BEGINNING OF APPEARANCE OF RARE VISIBLE FLASHES WAS CONSIDERED A THRESHOLD; MOST RELIABLE MEASUREMENTS OF THE THRESHOLD INTENSITY WERE OBTAINED FOR XE. AT VARIANCE WITH XE, THE THRESHOLD IN HE INCREASES CONSIDERABLY WITH INCREASING GAS PURITY. THE SPARKS IN AR, HE, AND NE LIGHT LONGER THAN IN XE AND THE REFLECTION AND ABSORPTION OF THE PULSES IS SMALLER. THE XE ATOMS ARE IONIZED AND AT HIGHER PRESSURES, THE ELECTRON D. REACHES A CRIT. VALUE OF 1.13 TIMES 10 PRIME19-CM PRIME3. THE THRESHOLDS MEASURED ARE DISCUSSED ON THE BASIS OF AN AVALANCHE IONIZATION. THE AVALANCHE DEVELOPS IF THE ENERGY GAIN RATE EXCEEDS THE TOTAL RATE OF LOSSES. THE THRESHOLD CORRESPONDS TO AN ELECTRON D. STABILITY, IN CONTRADICTION TO THE SHORT GIANT PULSES OF THE RUBY AND ND LASERS.

FACILITY: INST. PROBL. MEKH., MOSCOW, USSR.

UNCLASSIFIED

USSR

GENERALOV, A. A., ILIYEV, V. I., LOZOV, G. I., ASTASOV, A. A.,
and RAYZER, Yu. P.

"Experimental Investigation of Continuously Heated Optical Discharges"

Moscow, Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, vol. 61,
No. 4(10), October 1971, pp 1434-1446

Abstract: This article is the consequence of a letter written to the editor of the ZhETF (Journal of Experimental and Theoretical Physics) by the authors named above, in which they reported obtaining a continuously heated optical discharge in gases at pressures of the order of several atmospheres. The discharge plasma occurs at the center of a gas volume far from all solid surfaces, emits a blinding white light, and lasts as long as energy fed it by an input laser beam lasts. The present article provides the results of the first experimental investigation of some characteristics of this continuous optical discharge. It discusses the existence limits of the discharge's unattenuated mode and their dependence on the power of the light and the pressure of various gases, the stability of the heating for various beam configurations, and the determination of the shape and dimensions of the plasma. The part

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GENERALOV, N. A., et al, Zhurnal Eksperimental'noy i teoreticheskoy Fiziki, vol. 61, No. 4(10), October 1971, pp 1434-1446

of the laser beam energy absorbed by the discharge is measured, and the plasma discharge is analyzed by measuring the electron density through the spectroscopic method and estimating the plasma temperature. The authors express their thanks to A. E. Abaliyev for his assistance in setting up the experimental apparatus and conducting the experiments. They are associated with the Institute of Mechanical Problems, Academy of Sciences, USSR.

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- 92 -

Acc. Nr: **AP0043666**

GENERALOV N.A.

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 2, pp **438-440**

**«BLEACHING» OF MOLECULAR IODINE AND BREAKDOWN INDUCED
IN IT BY LASER PULSES**

N. A. Generalov, G. I. Kozlov, V. A. Masynkov

Changes in the absorption power of iodine vapor induced by pulses from a Q-switched ruby laser are investigated. It is found that with increase of the intensity from 10^7 to 10^9 W/cm² iodine gradually bleaches until it becomes totally transparent. For intensities close to the breakdown threshold values a structure is observed which consists of a large number of tiny growing points. The breakdown threshold value in iodine is found to be anomalously low.

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REEL/FRAME
19770070

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USSR

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RAYZER, Yu. P.; GENERALOV, N. A.; KOZLOV, G. I. (Moscow)

"Occurrence of Conditions of Nonequilibrium and the Variation of the Absorbing Capability of a Plasma under the Influence of Powerful Pulses of Light"

Novosibirsk, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki; May-June, 1970; pp 27-37

ABSTRACT: The authors studied the kinetic processes taking place in a plasma under the influence of laser radiation which result in conditions of nonequilibrium and a variation in the absorbing capability of the plasma. The population distribution of the excited levels of the atoms during the action of the radiation was found by solving the Fokker-Planck equation for bound states. The rate of gradual ionization and the kinetics of the variations in electron density, excited atoms, and the absorption coefficient were calculated. The results of the calculation of light absorption were compared with experimental data obtained by the authors on the passage of laser pulses through plasma, and a satisfactory agreement between theory and experiment was found.

The article includes 32 equations and 4 figures. There are 12 references.
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Acc. Nr: **AP0043668**

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 2, pp 420-429EXPERIMENTAL DETERMINATION OF THE PROBABILITY
FOR EXCITATION OF BROMINE VIBRATIONAL LEVELS
IN COLLISIONS WITH He, Ne, Ar, AND Xe ATOMS
IN SHOCK WAVESN. A. Gerasimov, V. A. Maksimenko

The behavior of the transition probability between bromine vibrational levels $\Delta E / h\nu$ in mixtures containing He, Ne, Ar or Xe is investigated for adiabatic factor values $0.5 \leq \omega_{r,t} \leq 18$. It is shown that in mixtures containing Ne or Ar the quantity $\Delta E / h\nu$ goes through a maximum at $\omega_{r,t} \sim 1$; in mixtures with He or Xe the variation of is different and depends on $\omega_{r,t}$. It is noted that for $\omega_{r,t} > 1$ the experimental results can be satisfactorily described by the Landau — Teller theory. Theories developed for $\omega_{r,t} < 1$ do not agree with data obtained in this range of $\omega_{r,t}$ values.

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REEL/FRAME
19770072

21 DI

1/2 045
UNCLASSIFIED
PROCESSING DATE--27NOV70
TITLE--A METHOD FOR INFRARED DIAGNOSTICS OF A PLASMA AND ITS APPLICATION
FOR INVESTIGATION OF IONIZATION AND RECOMBINATION OF XENON BEHIND THE
AUTHOR--(03)--GENERALOV, N.A., ZIMAKOV, V.P., KOZLOV, G.I.
COUNTRY OF INFO--USSR
6
SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
NR 6, PP 1928-1937
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--SHOCK WAVE, XENON, PLASMA ELECTRON TEMPERATURE, GAS STATE, ION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2236
STEP NO--UR/0056/70/058/006/1928/1937
CIRC ACCESSION NO--AP0125814
UNCLASSIFIED

2/2 045

CIRC ACCESSION NO--AP0125814

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD IS DESCRIBED FOR DETERMINATION OF THE ELECTRON TEMPERATURE AND ELECTRON CONCENTRATION PROFILES BEHIND THE FRON OF A SHOCK WAVE. IT IS BASED ON SIMULTANEOUS MEASUREMENT OF EMISSION AND ABSORPTION BY THE IONIZED GAS IN THE INFRARED REGION OF THE SPECTRUM (λ EQUALS 10.6 MICRONS). RESULTS OF AN EXPERIMENTAL INVESTIGATION OF IONIZATION AND RECOMBINATION PROCESSES IN XENON AT T EQUALS 8200-9200DEGREESK ARE PRESENTED. GOOD AGREEMENT BETWEEN THE EXPERIMENTAL DATA AND RECOMBINATION THEORY BASED ON A MODIFIED FOKKER-PLANCK THEORY IS OBTAINED. FACILITY: INSTITUT PROBLEM MEKHANIKI AN SSSR.

UNCLASSIFIED

USSR

UDC 576.851.48.06.095.6

GENERALOV, C. V., Crimean Medical Institute

"Conjugation of a Standard Type 408 E. coli Strain With Types 026:B6 and 020:K84 Strains and Analysis of the Recombinants "

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 3, 1971, pp 45-49

Abstract: When a standard type 408 E. coli strain was crossed with recipient strains of E. coli serotypes 026:B6 and 020:K84, the enzymatic activity of the resulting recombinants did not change from that observed in the parent cultures. Most of the selected recombinants possessed the donor type of resistance to T phages, but some of them were lysed by phages to which the parent cultures were resistant. Besides inheriting the antigens of the parent cultures, the recombinants acquired new ones, the most distinct being antigens of the 020:K84 serotype. All the recombinants, regardless of whether they inherited the antigenic properties of the donor or preserved the structure of the recipient, gained components found in representatives of other pathogenic types of E. coli as well.

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1/2- 013 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--REPLICA PLATE METHOD IN FORMATION OF ANTIBIOTIC RESISTANT AND
SENSITIVE COLI BACTERIA -U-
AUTHOR--GENERALOV, D.V. G
COUNTRY OF INFO--USSR
SOURCE--ANTIBIOTIKI, 1970, VOL 15, NR 3, PP 258-259
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ANTIBIOTIC RESISTANCE, BACTERIA MUTATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1985/0480 STEP NO--UR/0297/70/015/003/0258/0259
CIRC ACCESSION NO--AP0100958
UNCLASSIFIED

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PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100958
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. MODERN METHODS USED IN THE STUDIES ON THE GENETICS OF MICROORGANISMS REQUIRE FORMATION OF VARIANTS SENSITIVE OR RESISTANT TO VARIOUS ANTIBIOTICS. THE REPLICA PLATE METHOD IS USED FOR THIS PURPOSE. THE RESULTS OF THE EXPERIMENTS ARE PRESENTED. THE DATA SHOWED THE METHOD TO BE HIGHLY EFFECTIVE IN PRODUCTION OF ANTIBIOTIC RESISTANT MUTANTS, ANTIBIOTIC SENSITIVE VARIANTS AND ANTIBIOTIC DEFICIENT FORMS.

UNCLASSIFIED

Acc. Nr.:

AP0031630

Ref. Code: UR 0219

PRIMARY SOURCE: Byulleten' Eksperimental'noy Biologii i
Meditsiny, 1970, Vol 69, Nr 1, pp 89-92

THE STUDY OF THE GENETIC STRUCTURE
OF RECOMBINANTS OF SELECTED CROSSES
OF PATHOGENIC SEROTYPES O26:B6 AND O20:B145 E. COLI

O. V. Generalov

Simferopol Medical Institute

The author studied conjugation between wilde strains of E. coli of various serotypes. Crossing E. coli belonging to one serotype recombinants develop marked changes in sensitivity towards the T-phages, especially in the antigenic structure. Along with polyagglutinability recombinants show antigens of other serotypes, causing agglutination reaction in high titers.

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REEL/FAME

19691757

1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--GAMMOPHEN ACTION ON THE BIOELECTRIC ACTIVITY OF THE BRAIN -U-

AUTHOR--(03)-NIKIFOROV, M.I., AZUBALIS, V., GENERALOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(2), 146-9

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BRAIN, NERVOUS SYSTEM DRUG, ELECTROPHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0194

STEP NO--UR/0390/70/033/002/0146/0149

CIRC ACCESSION NO--AP0119190

UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119190

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. GAMMOPHEN

(4,AMINO,N,(ALPHA,METHYLPHENETHYL) BUTYRAMIDE, HLC) ADMINISTERED I.V. TO RABBITS AT 1-10 MG-KG DEFINITELY ALTERED THE PERIOD OF SOME BETA AND GAMMA FLUCTUATIONS AND HIGH AMPLITUDE ALPHA ACTIVITY; AT 15-75 MG-KG IT PREDOMINATELY ACTIVATED THE BETA AND GAMMA RHYTHMS. IN RABBITS WITH ARMIN INTOXICATION, GAMMOPHEN RESTORED THE SPINDLE SHAPED ACTIVITY AND STEADILY INCREASED THE AMPLITUDE OF BETA AND GAMMA WAVES.

NEUROANATOMICAL ISOLATION OF HEMISPHERES IN THE BRAIN STEM DECREASED THE LOW AND MEDIUM FREQUENCIES (1-13 FLUCTUATION-SEC) AND THE SPINDLE SHAPED RHYTHMS AGAINST THE GAMMOPHEN BACKGROUND. SUBARACHNOIDAL ADMINISTRATION OF GAMMOPHEN AT 15 AND 100 MU G CAUSED HIGH AMPLITUDE SYNCHRONIZED POTENTIALS IN THE ELECTROCORITCORGRAM.

FACILITY: VOENNO MED.

AKAD. IM. KIROVA, LENINGRAD, USSR.

UNCLASSIFIED

USSR

UDC: 539.166.074

BRATANOVSKIY, V. V., GENERALOVA, V. V., GURSKIY, M. N., and TYLTAYEV, A. V.

"Metrologic Verification of the State of Measuring Gamma-Radiation Doses in the $1 \cdot 10^3$ - $10 \cdot 10^3$ Rad Interval With Liquid Chemical Detectors"

V sb. Dozimetriya i radiats. protsessy v dozimetr. sistemakh (Dosimetry and Radiation Processes in Dosimetric Systems -- collection of works), Tashkent, "Fan", 1972, pp 100-103 (from RZh-32.Metrologiya i Izmeritel'naya Tekhnika, No 5, 1973, Abstract No 5.32.1321)

Translation: The metrologic verification of the state of measuring gamma-radiation doses in the $1 \cdot 10^3$ - $10 \cdot 10^3$ rad interval with liquid chemical detectors showed that nearly one fourth of the digital values of an exposure dose diverge with the assigned value to magnitudes which exceed the measurement error. The number of overestimated results is nearly twice that of the underestimated. This attests to the presence of systematic error. Ways of improving the state of measuring gamma-radiation doses are indicated. Original article: one illustration and one table.

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- 139 -

1/2 043 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--MONTE CARLO OPTIMIZATION OF THE SHAPE OF SHIELDING -U-
AUTHOR--(02)-SONOVICH, V.A., GENEROZOV, V.L. 6
COUNTRY OF INFO--USSR
SOURCE--ATOMNAYA ENERGIYA (USSR), VOL. 28, NO. 2, P. 175, FEB. 1970
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY
TOPIC TAGS--MONTE CARLO METHOD, RADIATION SHIELDING, GAMMA RADIATION,
CYLINDRIC SHELL STRUCTURE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/1728 STEP NO--UR/0089/70/028/002/0175/0175
CIRC ACCESSION NO--AP0133633
UNCLASSIFIED

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CIRC ACCESSION NO--AP0133633

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. A CALCULATION IS DESCRIBED WHERE
THE OPTIMUM SHAPE OF A SHADOW SHIELD IN AN ASSUMED CYLINDRICAL GEOMETRY
WAS FOUND BY MINIMIZING A FUNCTION DESCRIBED THE ENERGY FLUX OF GAMMA
RADIATION, THE TOTAL WEIGHT OF THE SHIELD BEING CONSTANT.

UNCLASSIFIED

Acc. Nr:

AP0046372

Abstracting Service:

INTERNAT. AEROSPACE ABST

Ref. Code:

5-70 UR0208

A70-25190 # Use of the Monte Carlo method to calculate the risk of exceeding a given dose of solar flare protons (Primenenie metoda Monte-Karlo dlia vychisleniia riska prevysheniia zadannoi dozy protonov solnechnykh vspyshek). V. L. Generozov, V. L. Kolomenskii, V. G. Kuznetsov, and V. A. Sakovich. Zhurnal Vychislitel'noi Matematiki i Matematicheskoi Fiziki, vol. 10, Jan.-Feb. 1970, p. 247-250. 10 refs. In Russian.

Calculation of the radiation hazard presented to space vehicles by proton fluxes from solar flares, using the Monte Carlo method. An estimate is made of the probability of exceeding a given dose of solar flare protons. The distribution of the flares in time is simulated on a computer. At appropriate stages of the simulation the techniques of importance sampling and analytical averaging are applied.

A.B.K.

REEL/FRAME
19781537

USSR

UDC: 621.73.042

GENERSON, I. G., KHINSKIY, P. D., TOKAREV, V. N., LIBMAN, P. M., KRYLOV, V. N.

"New Technology for Production of Forgings of Large Turbine Wheels"

Kuznechno-Shtampovochnoye Proizvodstvo, No 1, Jan 73, pp 3-7.

Abstract: The Neva Machine Building Plant imeni V. I. Lenin has developed a new technology for the production of forgings of large turbine discs, assuring high metal quality. The technological features of the new process are as follows: 1. The discs are made of steel melted in an arc electric furnace by the method of deep decarburization. 2. During pouring of the steel into ingots of relatively small size, designed to yield one disc per ingot, the steel is evacuated. 3. An increased volume of metal is removed from the axial zone of the ingot. The primary stages of experimental work in production of turbine discs by the new technological process and results of their examination are presented.

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- 81 -

USSR

UDC 539.4

LEVIN, YE.YE., KAZEMINA, A.D., KURATOV, P.S., GUREVICH, G.I., GENEERSON, I.G.,
LUBMAN, P.M., Central Scientific Research, Planning, and Design Boiler
and Turbine Institute imeni I.I. Polzunov

"Some Results of Acceleration Tests of Disk Models Made of Steel EP 631"

Kiev, Problemy Prochnosti, No 2, 1972, pp 113-116

Abstract: The experience of preparing and testing disks with a diameter of 355 x 46 mm, made of ingots weighing 0.8 t, is set forth for the first time. Steel EP631 was melted in a 5-ton electric arc furnace with subsequent vacuum-arc remelting. The heat-treatment regime of the disks is presented, as well as their mechanical properties in various directions. The results of acceleration tests of two models of the disks of one of the turbo machines are presented. Tests were carried out on disks without incisions, as well as on disks with "effective" incisions on the internal diameter, 10 mm deep and with a curvature radius of 0.18 mm. The obtained results testified to the actual possibilities of preparing and using disks of the indicated size from steel EP631. 3 figures, 3 tables, 9 bibliographic entries.

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- 83 -

1/3 042

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--NEW TECHNOLOGICAL PROCESSES FOR THE PRODUCTION OF CRITICAL PURPOSE
FORGED PIECES FROM HIGH ALLOY STEELS -U-

AUTHOR--GENERSON, I.G.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (4), 70-5

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--HIGH ALLOY STEEL, METAL FORGING, NONMETALLIC INCLUSION,
CHROMIUM STEEL, NUCKEL STEEL, MOLYBDENUM STEEL, TURBINE DISK, OPEN
HEARTH STEEL, SULFIDE, MECHANICAL PROPERTY, HIGH QUALITY STEEL, VACUUM
REFINING/(U)34KH3M LOW ALLOY STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0934

STEP NO--UR/0129/70/000/004/0070/0075

CIRC ACCESSION NO--AP0133022

UNCLASSIFIED

2/3 042

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0133022

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN RECENT YEARS THERE HAS BEEN AN INCREASED INTEREST IN THE INVESTIGATION AND THE IMPLEMENTATION OF THE PRODUCTION OF CRIT. PURPOSE FORGED PIECES FOR TURBINE DISKS FROM CR-NI-MO STEELS OF THE TYPE 34KHZM. SUCH FORGED PIECES ARE NOT MELTED IN AN ACID OPEN HEARTH, BUT IN AN ELEC. FURNACE WITH A BASIC BOTTOM. AS COMPARED TO THE ACIDIC OPEN HEARTH STEEL, THE BASIC ELEC. STEEL IS CHARACTERIZED BY INCREASED GAS SATURABILITY AND A LESS FAVORABLE COMPN. OF NONMETALLIC INCLUSIONS. THE HEREIN INVESTIGATED PROCESS OF DEEP DECARBURIZATION OF THE METAL MAKES IT POSSIBLE TO DECREASE THE H CONTENT OF ONE HALF TO TWO THIRDS. SI-FE AND SI-MN NOT CONTG. AL, ARE ALSO BEING USED INSTEAD OF THE PREVIOUSLY USED AL FOR DEOXIDN. IN SUCH STEELS THE NONMETALLIC INCLUSIONS PRESENT CONSIST ALMOST ENTIRELY OF SILICATES WITH A HIGH SILICA CONTENT PRESENT. SUCH INCLUSIONS DO NOT DEFORM MUCH DURING FORGING AND PARTICULARLY DO NOT DECREASE THE MECH. PROPERTIES. THE MOST HARMFUL EFFECT ON THE QUALITY OF STEEL IS EXERTED BY SULFIDE INCLUSIONS, WHICH REGARDLESS OF THE MELT USED, DEFORM DURING FORGING AND SHARPLY DECREASE THE PLASTIC PROPERTIES OF THE METAL IN THE TRANSVERSE AND THE TANGENTIAL DIRECTIONS. THE NEW PROCESS OF MELTING STEELS IN ELEC. FURNACES IN COMBINATION WITH THE FUNDAMENTAL FORGING CONDITIONS AND THERMAL TREATMENT OF THE DISKS PROVIDED A HIGH QUALITY AND STABLE RESULTS OF PRODUCTION CONTROL OF THE DISKS. THE NEW TECHNOL., HOWEVER, WAS NOT SUFFICIENTLY RELIABLE FOR THE FABRICATION OF CRIT. PURPOSE FORGED PIECES. STEEL FOR THESE WAS PREPD. BY DEEP DECARBURIZATION WITH ADDNL. VACUUM TREATMENT DURING POURING.

UNCLASSIFIED

3/3 042

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0133022

ABSTRACT/EXTRACT--FACILITY: NEVSKII ZAVOD IM. LENINA, USSR.

UNCLASSIFIED

GENES

56

Acc. Nr: AP0052335

Ref. Code: UR8238

PRIMARY SOURCE: Fiziologichnyi Zhurnal, 1970, Vol 16, Nr 1, pp 14-23

EFFECT OF SOME HORMONES ON UROPEPSINE EXCRETION BY DOGS

S. G. Genes, N. G. Lesnoy

Institute of Endocrinology and Chemistry of Hormones, Kharkov,
Ukrainian Advanced Training Institute for Doctors, Kharkov

Summary

The effect of different non-hormonal substances was investigated on uropepsine excretion by healthy dogs for two hours. The urine was always taken in the morning on an empty stomach or after administration of substances. The uropepsine excretion was also studied in diabetic, adrenalectomized and hypophysectomized dogs.

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REEL/FRAME
19820921

24 2

GENIN, A.

JPRS 55714

14 April 1972

MEASURES AGAINST THE UNFAVORABLE EFFECT OF WEIGHTLESSNESS

[Article by A. Genin and I. Pestov, Moscow, Aviatitsyn I. Kommanavika, Russian, No. 3, 1972, signed to press 1 February 1972, pp 30-33]

Introduction

Among the problems discussed at the Fourth International Symposium "Man in Space" an important place was occupied by the problem of preventing the unfavorable effect of prolonged weightlessness on the human body. Soviet scientists, A. N. Genin and I. B. Pestov, specialists in the space medicine field, presented a report on the studies being made in this direction. The following report is presented for the perusal of our readers.

Planned space flights have yielded sufficient material for an objective evaluation of the restrictions imposed by weightlessness on the duration of presence of cosmonauts aboard space vehicles.

The unfavorable aftereffects of weightlessness were clearly manifested already during the 15-day flight of A. G. Mikulayev and V. I. Nevskiy aboard the "Vostok-3" ship. Return to terrestrial conditions was accompanied in the cosmonauts by a sensation of increased body weight, a decrease in physical performance, a deterioration in tolerance of various postures, changes in gait, and a number of other impairments. Accordingly, the problem arose of the need for developing means for preventing these unfavorable phenomena.

The unfavorable reactions observed in cosmonauts during return to terrestrial gravitation are reproduced to a considerable degree by the laboratory simulation of weightlessness. For example, they are observed after prolonged immersion of

[1 - USSR - A/C]

GENIN, A.

MEASURES AGAINST THE UNFAVORABLE EFFECT OF WEIGHTLESSNESS

[Article by A. Genin and I. Kostov, Moscow, Aviatsiya i Kosmonavtika, Russian, No 3, 1972, signed to press 1 February 1972, pp 30-31]

JPRS 55714

14 April 1972

Introduction

Among the problems discussed at the Fourth International Symposium "Man in Space" an important place was occupied by the problem of preventing the unfavorable effect of prolonged weightlessness on the human body. Soviet scientists, A. I. Genin and I. D. Kostov, specialists in the space medicine field, presented a report on the studies being made in this direction. The following report is presented for the perusal of our readers.

Planned space flights have yielded sufficient material for an objective evaluation of the restrictions imposed by weightlessness on the duration of presence of cosmonauts aboard space vehicles.

The unfavorable aftereffects of weightlessness were already manifested already during the 10-day flight of L. G. Mikheyev and V. I. Pavlov. Genova aboard the "Vostok-2" ship. Return to terrestrial conditions was accompanied in the cosmonauts by a sensation of increased body weight, a decrease in physical performance, a deterioration in tolerance of vertical posture, changes in gait, and a number of other symptoms. Accordingly, the problem arose of the need for developing means for preventing these unfavorable phenomena.

The unfavorable reactions observed in cosmonauts during return to terrestrial gravitation are reproduced to a considerable degree by the laboratory simulation of weightlessness. For example, they are observed after prolonged immersion of

- 1 -

[I - USSR - A/C]

USSR

UDC 591.1

GENIN, A. M., BABCHINSKIY, F. V. and KOTOVSKIY, Ye. F.

~~"The Effect of Pure Oxygen Under Normal Atmospheric Pressure on Animals"~~

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 1, 1971, pp 69-73

Abstract: Mice and rats were exposed to a mixture of gases consisting of 94 to 98% oxygen and about 0.8% carbon dioxide (relative humidity 60 to 90% and temperature 18 to 23°C) for 5 days to determine whether shifts resulting from the inhalation of pure oxygen are due to increased partial pressure of oxygen in the blood or to pulmonary disturbances and development of asphyxia. During the first 6 hours, inhalation of pure oxygen had a stimulating effect on motor and sexual activity and metabolism. Signs of pathological disorders in the lungs and other organs (perivascular edema and small diapedetic hemorrhages) appeared after 6 to 12 hours' exposure. During the next 12 hours pathological disorders in the lungs intensified although external

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USSR

GENIN, A. M., BABCHINSKIY, F. V., and KOTOVSKIY, Ye. F.,
Izvestiya Akademii Nauk SSSR, Seriya Biologicheskaya, No 1,
1971, pp 69-73

respiration remained adequate. Thereafter pathological changes became severe enough to impair gas exchange between the alveoli and blood and gave rise to hypoxia. Hypoxia together with the inhibition of enzymatic activity and hematopoiesis led to the accumulation of toxic substances, metabolic acidosis, and degenerative changes in the parenchymatous organs. It was concluded that inhaling pure oxygen under normal pressure first causes systemic disturbances resulting from increased oxygenation of the blood and then pulmonary disorders, secondary changes in the heart, liver, kidneys, etc., and death.

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1/2 045 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EFFECT OF A LONGITUDINAL MAGNETIC FIELD ON THE STABILITY OF A FLOW
OF A CONDUCTING LIQUID -U-
AUTHOR--(C3)--GENIN, L.G., ZHILIN, V.G., MANCHKHA, S.P.
COUNTRY OF INFO--USSR
SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(2), 454-7
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--REYNOLDS NUMBER, MAGNETIC FIELD EFFECT, TURBULENT FLOW,
MERCURY, STAINLESS STEEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1420 STEP NO--UR/0294/70/008/002/0454/0457
CIRC ACCESSION NO--AP0133372
UNCLASSIFIED

2/2 045

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0133372

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF A LONGITUDINAL MAGNETIC FIELD (1.1 WEBERS-M PRIME2) ON THE TRANSITION FROM LAMINAR TO TURBULENT FLOW OF A CONDUCTIVE LIQ. WAS STUDIED FOR HG IN A STAINLESS STEEL TUBE OF 5.1-MM DIAM. AND 710-MM LENGTH BY THE PRESSURE DROP MEASUREMENT METHOD. THE FRICTION FACTORS AND PRESSURE DISTRIBUTION ALONG THE TUBE ARE PLOTTED AS A FUNCTION OF REYNOLDS NOS. (RE) FOR HG WITH AND WITHOUT A MAGNETIC FIELD AND WITH AND WITHOUT A TURBULENT FLOW INDUCING RING. A TRANSITION TO TURBULENT FLOW BEGINNING AT RE APPROXIMATELY EQUAL TO 3000 TO RE IS GREATER THAN 5000 WAS OBSD. IN THE MAGNETIC FIELD. FACILITY: INST. VYS. TEMP., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.373.826:550.3

GENIN, V. N. and KABANOV, M. V.

"Experimental Investigation of the Dependence of the Atmosphere's Optical Transfer Function on the Wavelength"

Moscow, V sb. X Vses. konf. to rasprostr. radiovoln. Tezisy dokl. (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses--collection of works) "Nauka," 1972, pp 187-190 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10D366)

Translation: Results are given of atmospheric optical transfer functions for two wave lengths ($\lambda = 0.5$ and 1 microns). It is shown that in the region of high transparency frequencies in the infrared range, the atmospheric optical transfer function (in the transparent windows) is higher than in the visible range. Bibliography of five. A. L.

1/1

- 27 -

GENIN, V. N.

Fomchenkov, V. N., Shadrinov, O. A.	Application of the Tsis-19 Piezoceramic for Ultrasonic Scanning of a Laser Beam	402
Vanevskiy, R. A., Lebedeva, L. N., Smeykhn, N. I.	Rotation of the Lobes of the Reflection Pattern of Coherent Light on Rotation of the Reflecting Surfaces	408
Aksen'yan, T. I.	Study of the Statistical Properties of Varia- tions of the Laser Field Intensity on Propagation on a Ground Route	412
Aksen'yan, T. I., Semenov, A. A.	Analysis of Random Variations of the Laser Field Intensity in the High-Frequency Part of the Spectrum During Propagation in the Troposphere	420
Gusev, V. G., Vorobeychikov	Study of the Passage of Phase Modulated and Amplitude Modulated Optical Band Signals Through the Atmosphere	425
Milyutin, Ye. P., Lobkova, L. N., Litvinova, T. P., Chistyakov, A. B.	Experimental Study of Laser Beam Propagation in the Atmosphere	429
Lobkova, L. N.	Power Fluctuations of Laser Radiation Caused by a Turbulent Atmosphere	435
Vlasov, G. I., Levin, I. N.	Laser Beam Videoinformation Transmission Range in an Aqueous Medium	443
Gentile, V. N., Kabanov, M. V.	Spatial and Time Characteristics of Atmospheric Noise in the Visible Range of the Spectrum ...	447
Vaytsel, V. I., Khmel'evskiy, S. S.	Holographic Recording Through Random Media ...	453
Senkevich, B. V., Lysakov, Ye. I., Osipov, Yu. N.	Frequency Stabilization of Laser Emission by the Active Method with the Application of an Auxiliary Heterodyne	460
Yegorov, Yu. P., Petrov, A. S.	Experimental Measurement of the Natural Radia- tion Line Width of a Gas Laser with Coupled Types of Oscillations	464
Sagatov, E. A., Kazakov, A. U.	Correlation Analysis of the Coherence of Laser Emission	471
Sagatov, E. A., Kazakov, A. U.	Laser Noise During Operation of an Optical Quantum Amplifier	478

- 488 -

TECHNICAL TRANSLATION

1007 / ESTCHIT 23 2013-72

87, 414 72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,
SEPTEMBER 1968

RUSSIAN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZUCHENIYEM

AUTHOR: L. A. DERUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY
IHEMI T.G. SCHEVCHENKO

Translated for FSTC by AGSI

NOTICE

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11411 Page 1

1/2 007 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--BRONCHOSCOPY IN DIAGNOSING CHRONIC DUST INDUCED BRONCHITIS -U-

AUTHOR--(05)--YELOVA, M.YA., MALTSEVA, L.M., SOROKIN, V.M., GENINA, O.D.,
FINKELBERG, E.I.
COUNTRY OF INFO--USSR

SOURCE--GIGIYENA TRUDA I PROFESSIONAL'NYE ZABOLEVANIYA, 1970, NR 4, PP
56-58
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RESPIRATORY SYSTEM DISEASE, DIAGNOSTIC METHODS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1983/1227

STEP NO--UR/0391/70/000/004/0056/0058

CIRC ACCESSION NO--AP0054122

UNCLASSIFIED

2/2 007

UNCLASSIFIED

PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054122

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER CARRIES DATA OF CLINICO ROENTGENOLOGICAL, ENDOSCOPIC AND FUNCTIONAL EXAMINATIONS OF 97 PATIENTS PRESENTING DUST INDUCED PATHOLOGY. OF THESE 62 HAD CHRONIC BRONCHITIS, 12, PNEUMONCONIOSIS AND 23 WERE SUSPECTED OF SUFFERING FROM THE LATTER. AN ANALYSIS OF THESE FINDINGS IS SUGGESTIVE THAT BOTH IN CHRONIC BRONCHITIS AND IN PNEUMONCONIOSIS, AS WELL AS IN SUSPECTED PNEUMOCONIOSIS THERE APPEAR MANIFESTATIONS OF ENDOBRONCHITIS, MOSTLY OF SUB AND ATROPHIC NATURE AND LESS OFTEN OF HYPERTROPHIC ONE. CHARACTERISTIC SIGNS OF ENDOBRONCHITIS ARE DISCERNABLE EARLIER AND MORE FREQUENTLY THAN ROENTGENOLOGICAL MANIFESTATIONS OF THE DISEASE. THERE WERE INSTANCES WHEN ENDOSCOPIC CHANGES BECAME APPARENT IN THE ABSENCE OF BRONCHOGRAPHIC ONES. THUS, IN CASES GIVING GROUND TO SUSPECT CHRONIC DUST INDUCED BRONCHITIS OR PNEUMOCONIOSIS BRONCHOSCOPY OS TO BE REGARDED A VALUABLE PROCEDURE CONDUCIVE TO AN EARLY IDENTIFICATION OF THE AFFECTION.

UNCLASSIFIED

USSR

UDC: 62.52(047.1)

GENIS, A. A., GORNSHTEYN, I. L., PUGACH, A. B.

"Glow-Discharge Devices"

Pribory Dleyushchego Razryada [English Version Above], Second Edition, Revised and Supplemented, Kiev, Tekhnika Press, 1970, 404 pages (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7, 1970, Abstract No 7AllK, by V. M.).

Translation: This book analyzes elements of the theory, principal characteristics, and parameters of glow-discharge devices (diodes, triodes, tetrodes, multi-electrode tubes) and presents elementary circuits, functional units and blocks, and methods of design and selection of the main circuit elements used in various areas of industrial electronics. The book has been revised and supplemented since the first edition as concerns the characteristics, parameters, and properties of new tube types, new circuits, and their applications. The material on the dispersion, drift, and reliability of glow-discharge devices has been expanded and supplemented. The material was processed using statistical data from the leading organizations with experience in the operation of apparatus using cold-cathode tubes. 226 illustrations; 15 tables; 154 biblio. refs.

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- 9 -

USSR

UDC: 621.374

YAKOVLEV, V. N., VOSKRESENSKIY, V. V., GENIS, A. A. et al.

"Handbook on Pulse Technology"

Spravochnik po imoul'snoy tekhnike (cf. English above), Kiev, "Tekhnika", 1970,
654 pp ill. 2 r. 17 k. (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7G268 K)

Translation: The authors outline the theoretical principles of pulse technology and explain the physical aspect of phenomena. The computational formulas are given which are necessary in the design of pulse circuits and devices, as well as examples of their calculation. Methods are given for analysis of linear circuits as well as methods for synthesis of linear homogeneous and nonhomogeneous circuits for shaping and transforming square power pulses. Transient processes are investigated; a method is outlined for calculating linear and nonlinear tube and transistor amplifiers and pulse shapers. Square pulse generators (multivibrators, blocking oscillators and flip-flops) based on tubes, transistors, tunnel diodes and cold-cathode thyratrons are considered. Tube and transistor sawtooth voltage and current generators, pulse frequency dividers and generators with delayed feedback are described. Considerable attention is devoted to methods and circuits for stabilizing the time parameters of generated pulses. The handbook is written for engineers and tech-

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YAKOVLEV, V. N. et al., Spravochnik po impul'snoy tekhnike, Kiev, "Tekhnika", 1970

nicians working in the development and design of electronic and radio engineering equipment of various types, and may serve as a reference text in course and thesis planning for students in the appropriate field. 356 illustrations, 30 tables, bibliography of 250 titles. Resumé.

1/2 012 UNCLASSIFIED G PROCESSING DATE--02OCT70
TITLE--A MANUAL ON PULSE TECHNOLOGY -U-
AUTHOR--(05)-YAKOVLEV, V.N., VOSKRESENSKIY, V.V., GENIS, A.A., DORONKIN,
YE.F., LITVINENKO, O.N.
COUNTRY OF INFO--USSR
SOURCE--A MANUAL ON PULSE TECHNOLOGY (SPRAVOCHNIK PO IMPUL'SNOY TEKHNIKE)
KIEV, TEKHNIKA. 1970, 654 PP
DATE PUBLISHED-----70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION
TOPIC TAGS--ELECTROMAGNETIC PULSE, PULSE AMPLIFIER, MULTIVIBRATOR,
BLOCKING OSCILLATOR, PULSE GENERATOR
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1991/0567 STEP NO--UR/0000/70/000/000/0001/0654
CIRC ACCESSION NO--AM0110365
UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--02OCT70
 CIRC ACCESSION NO--AM0110365
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: PREFACE 5.
 CHAPTER I LINEAR CIRCUITS 7. II FORMING LINES 71. III THE
 CORRELATION METHOD OF INVESTIGATION OF TRANSITION PROCESSES IN LINEAR
 SYSTEMS 133. IV WIDE BAND AMPLIFIERS AND PULSE AMPLIFIERS 151. V
 MULTIVIBRATORS WITH A BASIC MASTER TIME CIRCUIT 181. VI
 MULTIVIBRATORS WITH EMITTER MASTER TIME CIRCUITS 204. VII TRANSISTOR
 TRIGGERS 217. VIII TRANSISTOR BLOCKING GENERATORS 229. IX TUBE
 MULTIVIBRATORS 248. X TUBE TRIGGERS 299. XI TUBE BLOCKING
 GENERATORS 314. XII CONTROLLED GENERATORS OF SAWTOOTH VOLTAGE 344.
 XIII AUTOGENERATORS OF SAWTOOTH VOLTAGE 393. XIV GENERATORS OF
 SAWTOOTH CURRENT 447. XV PULSE GENERATORS WITH BRIDGE MASTER CIRCUITS
 473. XVI PULSE FREQUENCY DIVIDERS 491. XVII PULSE GENERATORS WITH A
 QUARTZ STABILIZATION OF THE FREQUENCY OF VIBRATIONS 525. XVIII PULSE
 GENERATORS WITH LAGGING REVERSE CONNECTION 539. XIX PULSE CIRCUITS
 ON TUNNEL DIODES 556. XX PULSE CIRCUITS ON GAS DISCHARGE INSTRUMENTS
 595. LITERATURE 637. IN A COMPACT FORM YET FULLY ARE GIVEN THE
 THEORETICAL BASES FOR THE PULSE TECHNOLOGY; EXPLAINED IS THE PHYSICAL
 ASPECT OF THE PHENOMENA; CITED ARE MANY CALCULATING FORMULAE NECESSARY
 IN DESIGNING BASIC PULSE CIRCUITS AND DEVICES AND ALSO EXAMPLES OF THEIR
 CALCULATION. A GREAT DEAL OF ATTENTION IS GIVEN TO METHODS AND DIAGRAMS
 OF STABILIZATION OF TEMPORARY PARAMETERS OF THE GENERATED IMPULSES. THE
 MANUAL IS FOR ENGINEERS AND TECHNOLOGISTS DESIGNING ELECTRO AND
 RADIOTECHNICAL EQUIPMENT FOR WIDE USE.

UNCLASSIFIED

Acc. Nr.: AM0045255

Ref. Code: UR0000

Genis, A. A.; Gornshteyn, I. L.; Pugach, A. B.

Glow-Discharge Instruments (Priboiy tleyushchego razryada) 2nd Ed. Kiev, Tekhnika, 1970, 403 pp (SL:1857)

TABLE OF CONTENTS:

Preface		3
Chapter I	Brief Data on Electric Discharge in Gases	5
II	Characteristics, Parameters of Glow-Discharge Diodes and Triodes	30
III	Characteristics and Parameters of Multielectrode Tubes	60
IV	Industrial Types of Glow-Discharge Instruments	88
V	Stability of Parameters of Glow-Discharge Instruments and Their Testing Methods	155
VI	Fundamental Circuits	192
VII	Basic Composite Circuits	232
VIII	Methods for Calculation of Basic Circuits	250
IX	Instruments Used in Automation, Remote Control, Computing Techniques, Industrial Electronics, Experimental and Nuclear Physics	285
X	Use of Glow-Discharge Instruments in Communication Techniques	367

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21.

AM0045255

Bibliography

395

The book deals with elements of the theory, basic characteristics and parameters of glow-discharge instruments (diodes, triodes, tetrodes, multielectrode tubes)...

The book was written for engineers and technicians specializing in automation, remote control, computing techniques and communication; it can be useful also to college and technicum students...

LD

19780177

USSR

UDC: 519.2

GENIS, A. L.

"Asymptotic Behavior of the Error of Linear Prognosis for a Class of Random Processes"

Probl. peredachi inform., 1973, 9, No 1, pp 42-56 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V119 by the author)

Translation: Let $\xi(t)$ ($-\infty < t < \infty$) be a random process which is stationary in the broad sense with continuous time, and let $H_u^V(-\infty, u, v, \infty)$ be a Hilbert space generated by random quantities $\xi(s)$ for $s \in (u, v)$ with scalar product $(\xi, \eta) = E(\xi\eta)$ $\xi, \eta \in H_u^V$. η is a quantity which is the conjugate of ξ . The linear prognosis of the random quantity $\xi(t)$ with respect to past $H_u^V(t > v)$ is the term given by the author to the projection $\xi_{u,v}(t)$ of the random quantity $\xi(t)$ on H_u^V . In other words, $\xi_{u,v}(t)$ is the best linear approximation of $\xi(t)$ by the quantities $\xi(s)$ for $s \in (u, v)$. The symbol $\sigma_{u,v}^2(t)$ is used to denote the variance of the random quantity $\eta(t) = \xi(t) - \xi_{u,v}(t)$.

The article investigates the asymptotic behavior of the quantity $\delta_T(t) = \sigma_{-T,0}^2(t) - \sigma_{-\infty,0}^2(t)$ as $T \rightarrow \infty$ in the case where the spectral density of

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USSR

GENIS, A. L., Probl. peredachi inform., 1973, 9, No 1, pp 42-56

the process $\xi(t)$ takes the form

$$f(\lambda) = \frac{f_1(\lambda)}{(1 + \lambda^2)^\alpha}, \quad (1)$$

where $\alpha > \frac{1}{2}$, 2α is nonintegral,

$$\begin{aligned} 0 < m < f_1(\lambda) < M_0 < \infty, \\ |f^{(q)}(\lambda)| < M_q < \infty, \quad q = 1, 2, \dots, p = [2\alpha], \\ |f^{(p)}(\lambda') - f^{(p)}(\lambda'')| < L_f |\lambda' - \lambda''|^\beta, \quad \beta = \{2\alpha\} \end{aligned} \quad (2)$$

$f^{(q)}(\lambda)$ is the q -th derivative of $f_1(\lambda)$; $L_f, m > 0$; $M_q < \infty, q = 0, 1, \dots, p$ are constants (the symbols $[2\alpha]$ and $\{2\alpha\}$ designate the integral and fractional parts of the number 2α). The principal result of the article is formulated in the following theorem.

Theorem 1. Let $\xi(t) (-\infty < t < \infty)$ be a stationary random process in the broad sense with continuous time and with spectral density $f(\lambda)$ of type (1) which satisfies conditions (2). Then $\delta_T(\tau) = O(1/T^{2\alpha-1}), T \rightarrow \infty$.

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- 7 -

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ON EPIZOOTOLOGY OF ECHINOCOCCOSIS IN THE ZONE OF KAZAKHSTAN DESERT

-U-
AUTHOR--GENIS, D.YE.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA PARAZITOLOGIYA I PARAZITARNYYE BOLEZNI, 1970, VOL
39, NR 3, PP 302-306
DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, AGRICULTURE

TOPIC TAGS--ANIMAL DISEASE, COMMERCIAL ANIMAL, EPIZOOTIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0228

STEP NO--UR/0358/70/039/003/0302/0306

CIRC ACCESSION NO--AP0123990

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123990

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN KAZAKHSTAN DESERT ZONE THE
AUTHOR EXAMINED FOR ECHINOCOCCOSIS CATTLE, SHEEP, DOGS AND FOUND THEM TO
BE INFESTED IN 8.49, 13 AND 5.5PERCENT RESPECTIVELY. A RELATIONSHIP
BETWEEN THE INFESTATION RATE OF ANIMALS AND THEIR DENSITY IN PASTURES
AND AGE WAS NOTED. THE MAIN ROLE IN MAINTENANCE UNDER LOCAL CONDITIONS
OF TWO TYPES OF CIRCULATION OF ECHINOCOCCI, IN VILLAGES AND SHEEP
BREEDING FARMS, BELONGS TO SHEEP AND DOGS. THE NECESSITY TO INVESTIGATE
FEATURES OF EPIZOOTOLOGY FOR PURPOSEFUL PROPHYLAXIS OF HUMAN
ECHINOCOCCOSIS IS EMPHASIZED. FACILITY: KZYL-ORDINSKAYA
OBLASTNAYA SANEPIDSTANTSIIYA.

UNCLASSIFIED

USSR

UDC 612.828:612.178 5

GENIS, E. D., DUKHIN, E. O., FOYA, N. M., and SHAPOVAL, L. M., Institute of Physiology imeni O. O. Bogomolets, Academy of Sciences, Ukrainian SSR

"Histochemical Changes in Neurons of the Bulbar Cardiovascular Center After Exclusion of the Baroreceptors of the Sino-Aortic Reflexogenic Zone"

Kiev, Fiziologichniy Zhurnal, No 6, 1970, pp 784-788

Abstract: Denervation of the sinocarotid and aortic reflexogenic zones in rabbits resulted in the development of stable hypertension. Histochemical study of the RNA content and succinic dehydrogenase activity in neurons of the medulla oblongata cardiovascular center revealed areas with significant changes in the above indices. The medial, lateral, and giant-cell nuclei of the reticular formation showed some increase in the number of activated neurons, which produce and utilize RNA, intensification of satellitosis, and large number of structures with high succinate dehydrogenase activity. No such changes were detected in other nuclei investigated (dorsal nucleus of the vagus, region of the tractus solitarius, and nucleus ambiguus).

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- 80 -

Acc. Nr:

AP0036828

Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i
Immunobiologii, 1970, Nr 1, pp 117-122

DYNAMICS OF ANTITOXIC IMMUNITY IN DIPHTHERIA
CARRIERS IN COLLECTIVE BODIES

N. N. Kostyukova L. A. Favorova, I. L. Genig

The authors present the results of determination of diphtheria toxoid titre in 218 children from 4 boarding schools, 69 of these were carriers of toxigenic diphtheria bacilli. The average antitoxin titre in these carriers was 2.0 AU/ml, considerably exceeding that in noncarriers of the same collective bodies (0.3 AU/ml). Repeated examination of 123 children in one and a half to two months (53 carriers and 70 noncarriers) demonstrated a rise and a fall of toxoid titre in the same number of carriers (20%). More prolonged observation of 36 carriers showed in the majority a rise of antitoxin, accompanied by a subsequent reduction, or only a fall of the titres. Elevation was seen mostly in the carriers with a low initial titre (< 2 AU/ml) of diphtheria antitoxin, and a fall — in the carriers with its higher level (2, 4, 10 AU/ml). Consequently, the carrier state of toxigenic diphtheria bacilli was accompanied by increased antitoxin titre, which fell one to two months after elimination of diphtheria bacilli.

D.N.

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USSR

UDC 615.28:632.95].099.015.44

PERELYGIN, V. M., SHPIRT, M. B., and GENIS, V. I., Kirgiz Institute of Epidemiology, Microbiology, and Hygiene, Frunze

"Cytotoxicity of Combination of Pesticides"

Moscow, Voprosy Pitaniya, No 1, 1973, pp 44-47

Abstract: The organochlorine pesticides most widely used in Kirghizia -- metaphos, methylmercaptophos, chlorophos, phosphamide, sevin, DDT, and lindane -- were isolated from food products of animal and plant origin, tobacco, water, air, mother's milk, and fatty tissue at or below the maximum permissible levels. In experiments with human embryonal fibroblasts in vitro the addition of the individual chemical agents to the cultures in amounts actually present in people in Kirghizia had little cytotoxic effect (judged by the number of degenerated cells) compared to the control. However, the effect was pronounced when a mixture of all the pesticides was added. The authors caution that the results of in vitro experiments cannot be compared to the effects in vivo because of the antitoxic barriers and mechanisms of detoxification that function in the intact organism.

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USSR

UDC 612.8.015.1

EF

MAKARCHENKO, A. F., ROYTRUB, B. A., ZLATIN, R. S., GENIS, Ye. D., and KOSTYUK, O. I., Institute of Physiology imeni A. A. Bogomolets, Academy of Sciences Ukrainian SSR, Kiev

"Acetylcholinesterase Activity in Hypothalamic and Cortical Structures During the Action of Pharmacological Agents"

Kiev, Neyrofiziologiya, Vol 5, No 1, Jan/Feb 73, pp 47-53

Abstract: Acetylcholinesterase (AChE) activity in rat brain was recorded continuously by the automated electrometric method. In intact rats aged 1 month, AChE activity is highest in the sensory and motor cortex, while various lower levels are assumed in the posterior hypothalamus, anterior hypothalamus, and hippocampus. With advancing age (6, 12, and 24 months), the center of AChE activity is shifted to the posterior hypothalamus, and there is a general decrease in AChE activity per gram of tissue. Adrenaline, injected subcutaneously in a dose of 300 mcg/kg, redistributes AChE activity within 15 min, shifting the maximum to the anterior hypothalamus. An identical dose of chloral hydrate reduces AChE activity and equalizes it in all these structures. The histochemical method, though good for determining the location of AChE in cell organelles, is unable to detect small variations in AChE activity. Since
1/2

- 47 -

USSR

MAKARCHENKO, A. F., et al, Neyrofiziologiya, Vol 5, No 1, Jan/Feb 73, pp 47-53

AChE activity reflects the physiological activity of the given structure, the electrometric method is recommended for determinations of the functional state of nervous tissues.

2/2

1/2 022 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--EFFECT OF NEOCORTEX ABLATION ON THE STATE OF HYPOTHALAMUS
NEUROSECRETORY ELEMENTS -U-
AUTHOR--GENIS, YE.D., FOYA, N.M.
COUNTRY OF INFO--USSR
SOURCE--FIZIOLOGICHNIY ZHURNAL, 1970, VOL 16, NR 1, PP 55-60
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CEREBRAL CORTEX, RABBIT, NERVE, SECRETION, BRAIN
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REF/FRAME--1982/0887 STEP NO--UR/0238/70/016/001/0055/0060
CIRC ACCESSION NO--AP0052311
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0052311

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A BILATERAL ABLATION OF NEOCORTEX IN RABBITS RESULTS IN THE DISTURBANCE OF EVACUATION OF NEUROSECRETION AND ITS DEPOSITION IN ALL THE DIVISIONS OF THE HYPOTHALAMIC HYPOPHYSEAL NEUROSECRETORY SYSTEM. AT THE SAME TIME SECRETORY ACTIVITY OF THE CELLS OF SUPRAOPTICAL AND PARAVENTRICULAR NUCLEI DECREASES, CYCLIC RECURRENCE OF THE NEUROSECRETORY PROCESS IS DISTURBED AND THE QUANTITY OF DARK PYCNOTIC FORMS OF CELLS INCREASES. BESIDES INTENSIFICATION OF NEUROSECRETION ENTRANCE IS ALSO OBSERVED ALONG EXTRAHYPOPHYSEAL PATHWAYS, INTO THE VESSELS OF THE BRAIN TISSUE AND BRAIN TISSUE SURROUNDING THEM, INTO LIQUOR BY ACTIVATING GLIA CELLS. THE MENTIONED CHANGES INTENSIFIED IN TIME AND WERE OBSERVED 1-2 MONTHS AFTER THE BILATERAL ABLATION OF NEOCORTEX. UNDER UNILATERAL DECORTICATION SUCH CHANGES WERE OBSERVED 5-10 MONTHS AFTER OPERATION. THE INVESTIGATIONS CONDUCTED SHOWN THE PRESENCE OF A NERVOUS CONTROL OF THE NEURO SECRETORY FUNCTION AND PERMIT ONE TO CONCLUDE THAT THE NEOCORTEX ABLATION RESULTS IN A STEADY DECREASE OF FUNCTIONAL ACTIVITY IN THE HYPOTHALAMUS NEUROSECRETORY ELEMENTS.

UNCLASSIFIED

USSR

UDC 669.71.042.6

KUZNETSOV, K. I., GENISARETSKIY, M. A., GOROKHOV, V. P., SKUCHILOV, A. I.,
SHCHEGLOV, D. A., FIRSOV, V. M., KOZLOV, K. A.

"Development and Assimilation of Continuous Casting of Large Aluminum Ingots"

Tekhnol. Legkikh Splavov. Nauchno-tekhn. Byul. VILSa [The Technology of Light Alloys, Scientific and Technical Bulletin of the All-Union Institute of Light Alloys], 1970, No. 6, pp. 91-93. (Translated from Referativnyy Zhurnal Metal-lurgiya, No. 5, 1971, Abstract No. 5 G139 by G. Svodtseva).

Translation: The equipment and technology for casting large T-shaped ingots (I) of Al weighing 1 t were developed in 1963-1964 at the SMK (expansion unknown -- possibility: Siberian Metallurgical Combine). In 1969-1970, about 10,000 tons of large I were processed. The use of these I by metallurgical plants to replace the 15-kg I provides for: 1) complete elimination of manual labor in all loading and unloading operations from casting of I at the manufacturer to charging in the melting furnaces of metallurgical plants; 2) reduction in labor consumption by consumers during unloading of I from railroad cars by a factor of 4 by using lift trucks; 3) halving of storage area requirements; 4) reduction in labor consumption involved in transportation of I from railroad car to casting shop by 1.3 times; 5) reduction in labor consumption during charging into furnace by a factor of 2; 6) reduction in requirements for charging boxes by 40%; 7) reduction in melting time by 10-15%; 8) improvement of quality of metal of I

1/2

USSR

UDC 669.71.042.6

KUZNETSOV, K. I., GENISARETSKIY, M. A., GOROKHOV, V. P., SKUCHILOV, A. I.,
SHCHEGLOV, D. A., FIRSOV, V. M., KOZLOV, K. A., Tekhnol. Legkik Splavov.
Nauchno-tekhn. Byul. VILSa, 1970, No. 6, pp. 91-93.

as a result of decreased gas content and increased metal purity with continuous casting. The ratio of the surface area of large I to volume is 6 times lower than that of 15 kg I as a result of which the charge includes less oxide film, which also improves the quality of the metal.

2/2

USSR

UDC: 621.131.43+539.21.084-492.3

AKSENTYAN, G. K., ~~GENIYEV, G. A.~~

"On Construction of a Two-Dimensional Wave Front in a Prestressed Rigid-Elastic-Plastic Medium"

Tr. TsNII stroit. konstruktsey (Works of the Central Scientific Research Institute of Structural Elements), 1970, vyp. 13, pp 22-29 (from RZh-Mekhanika, No 7, Jul 71, Abstract No TV666)

Translation: The authors consider propagation of the leading edge of two-dimensional waves in a pourable solid under conditions of plane deformation. The equation of the leading edge of the waves is presented for a half-plane acted on by a concentrated force and a dynamic load at the edge. This equation was solved by the method of separation of variables and the Cauchy method. A conclusion is drawn on curvature of the front as a consequence of the action of a concentrated force created by the prestressed state. N. A. Veklich.

1/1

- 121 -

USSR

UDC 724.04:539.374

GENIYEV, G. A., Moscow

"A Dynamic Problem in the Theory of Small Elastoplastic Deformations"

Moscow, Stroitel'naya Mekhanika i Raschet Sooruzheniy, No 6, 1970, pp 1-3

Abstract: The article deals with questions concerning the propagation of three-dimensional waves which bring about active deformation in a medium, the equations of state of which are described by the theory of small elastoplastic deformations. 1 figure, 1 bibliographic entry.

1/1

USSR

UDC 612.821 152.3 519.27

GENKIN, A. A.

"Partition Into Classes of Psychophysiological Properties Based on Interrelationship of Behavioral, Electro cortical and Electrocutaneous Indicators"

Moscow, Doklady Akademii Nauk SSSR, Vol 192, No 6, 1970, pp 1,363-1,366

Abstract: The article substantiates the absence of reproducible correlations between the same behavioral characteristics by the existence of classes of persons distinguished not only and not so much by the strength of some property, but mainly by the character of the interrelationship of different indicators of behavioral activity. The following different physiological and psychological indicators were measured in 18 healthy subjects aged 18-21:

1. Time to perform correction test with rings.
2. Errors in performing correction test with rings.

1/3

USSR

GENKIN, A. A., Doklady Akademii Nauk SSSR, Vol 192, No 6, 1970, pp 1,363-1,366

3. Information processing rate in the visual motor system (in bits/sec).

4. Difference in the latent period of responses to a 105 and 45 db acoustic signal in a situation of five signals of varying intensity in random order (law of strength).

5. Critical frequency of light flashes.

6. Skin resistance level between the inside and outside of the hand (mean level of GSR according to Fere).

7. Change in skin resistance level in response to instruction.

8. Mean level of asymmetry of phase duration of parieto-occipital EEG lead for a 60-second time interval.

2/3

USSR

GENKIN, A. A., Doklady Akademii Nauk SSSR, Vol 192, No 6, 1970, pp 1,363-1,366

9. Mean period_{EEG} for the same time interval.

The article considers the dependence of the mean GSR level and law of strength on the level of spontaneous EEG asymmetry, as well as the dependence of the number of correction test errors on the mean level of EEG asymmetry and law of strength. It was found that the interrelationship of the mean level of asymmetry and the law of strength induces the division of subjects according to the intensity of the "exciting process," i.e. naturally separates groups of "weak" and "strong" subjects. The class of persons for whom correction test errors positively correlate with the law of strength is characterized by lower EEG period values, a greater level of EEG asymmetry and greater GSR reactivity, which suggests that the representatives of this class are distinguished by a higher level of CNS activation (higher arousal).

3/3

1/3 034 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--WORK EXPENDITURES OF RENTGENOLOGISTS ON SOME EXAMINATIONS -U-
AUTHOR-(03)-YAKENICH, I.M., GENKIN, A.G., POLYANSKAYA, Z.M.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, SOVETSKOYE ZDRAVOOKHRANENIYE, RUSSIAN, NO 2, 1970,
SUBMITTED 25 JULY 1969, PP 31-35
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIOLOGY, INDUSTRIAL HYGIENE, MEDICAL EXAMINATION, X RAY
EQUIPMENT, DIAGNOSTIC METHODS, DIGESTIVE SYSTEM, RADIATION PROTECTION

CONTROL MARKING--NC RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/0699

STEP NO--UR/0753/70/000/002/0031/0035

CIRC ACCESSION NO--AP0132809

UNCLASSIFIED

2/3 034

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132809

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DURING RECENT YEARS THERE HAS BEEN A CONSIDERABLE CHANGE IN THE VOLUME AND NATURE OF WORK IN X RAY DIAGNOSTIC DIVISIONS AND OFFICES. MANY NEW RESEARCH METHODS HAVE BEEN INTRODUCED AND THERE IS EXTENSIVE USE OF SUCH SPECIAL INVESTIGATIONS AS BRONCHO, TOMO, ANGIOPULMON, ANGIOCARDIO AND ELECTROKYMOCGRAPHY AND MANY OTHER TECHNIQUES AND NEW EQUIPMENT IS BEING USED. AT THE SAME TIME, THE SUPPLY OF PROTECTIVE EQUIPMENT FOR THERAPEUTIC INSTITUTIONS HAS IMPROVED. THE INCREASE IN VOLUME AND COMPLICATION OF THE WORK OF X RAY OFFICES ARE REFLECTED TO A CONSIDERABLE DEGREE IN THE NATURE OF THE WORK DONE BY THEIR SPECIALISTS. THESE FACTORS ALSO EXERT A CONSIDERABLE EFFECT ON THE WORK EXPENDITURES OF MEDICAL PERSONNEL. IT CAN THEREFORE BE CONCLUDED THAT TIME SPENT ON ROENTGENOSCOPIC EXAMINATION OF ORGANS OF THE CHEST CAVITY AND DIGESTIVE TRACT DURING OPERATION OF THE X RAY TUBE AND ON THE EXAMINATION AS A WHOLE DIFFERS AT INSTITUTIONS OF DIFFERENT TYPES. ACCORDINGLY, EXISTING WORK LOAD STANDARDS FOR ROENTGENOLOGISTS REQUIRE REVISION. IN FORMULATING DIFFERENTIAL WORK LOAD STANDARDS FOR IMPORTANT TYPES OF EXAMINATIONS IT IS NECESSARY TO TAKE INTO ACCOUNT THE TYPE OF INSTITUTION WHERE THEY ARE MADE, THE SPECIFIC TYPE OF EXAMINATION AND THE GROUP OF EXAMINED PATIENTS. THE FORMULATION AND ADOPTION OF DIFFERENTIATED WORK LOAD STANDARDS FOR ROENTGENOLOGISTS WILL FURTHER IMPROVE THE X RAY DIAGNOSTIC SERVICE. FACILITY: ALL UNION SCIENTIFIC RESEARCH INSTITUTE OF SOCIAL HYGIENE AND ORGANIZATION OF PUBLIC HEALTH SERVICES IMENI N. A. SEMASHKO, MOSCOW. FACILITY: MGSCCH SCIENTIFIC RESEARCH X RAY RADIOLOGICAL INSTITUTE.

UNCLASSIFIED

3/3 034

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132809

ABSTRACT/EXTRACT--FACILITY: HEALTH MINISTRY RUSSIAN SOVIET FEDERATIVE
SOCIALIST REPUBLIC.

UNCLASSIFIED

6
USSR

UDC 621.791.62-762.65

GEMKIN, A. G., Candidate of Technical Sciences, SMIRNOVA, S. V., Engineer,
and ASTAKHOVA, A. P., Engineer

"Welding of Bellows From EI702 Alloys With Kh18N9T Steel Fittings"

Moscow, Svarochnoye Proizvodstvo, No 8, Aug 70, pp 44-45

Abstract: The initial bellows design unit specified bead forming of the bellows from EI702 alloy with Kh18N9T steel fittings. The bellows did not weld with the fittings and the joint disintegrated in the weld-affected zone. An attempt to arc-weld the bellows with fittings from EI702 alloys proved the possibility of producing a high-quality weld. This led to a new variant of a bellows unit in which the bellows were joined with the fittings by automatic arc welding and the fittings were joined with the body by friction welding. A microscopic examination of the weld of EI702 with Kh18N9T confirmed the possibility of obtaining a dense, flawless weld by friction welding. Metallographic analysis confirmed the reliability of the fusion of both materials in the bellows. After welding, the units were vacuum tested with a mixture of air and helium. The tests demonstrated that argon arc welding insures strength and airtightness and meets technical requirements.

1/1

- 79 -

USSR

UDC 538.4

VULIS, L. A., GENKIN, A. L., FOMENKO, B. A.

"Theory and Calculation of Magnetogasdynamic Flows in Channels"

Moscow, Teoriya i raschet magnitogazodinamicheskikh techeniy v kanalakh,
Atomizdat, 1971, 384 pp

Abstract: This book is devoted to one of the important branches of magnetogasdynamics, flows of weakly ionized plasma in an MHD channel at magnetic Reynolds numbers that are small as compared with unity. As concerns applications it is oriented toward the study of flow processes and energy transformation in the linear channel of a dc conduction MHD generator. The book is intended for scientific workers and engineers concerned with heat physics, power engineering, and mechanics. It can be used to obtain a general familiarization with the subject or with particular problems in engineering calculations, design, and the study of the channel of MHD plasma devices, and it can serve as a text for the study of magnetic and general gasdynamics in engineering institutions. The book contains 90 figures, 20 tables, and a bibliography of 366 references. The table of contents follows:

1/3

- 23 -

USSR

VULIS, L. A., et al, Teoriya i raschet magnitogazodinamicheskikh techeniy v kanalakh, Atomizdat, 1971, 384 pp

Part One. Basic Equations

Chapter 1. Equations of Gasdynamics

Chapter 2. Electromagnetic Field Equations

Chapter 3. Magnetogasdynamics Equations

Chapter 4. Elements of Kinetics

Part Two. Elementary Theory of the Channel of a Magnetogasdynamic Generator

Chapter 5. Magnetohydrogas Analogy

Chapter 6. Qualitative Analysis of Flows and Energy Transformation

Chapter 7. Calculations of Quasi-One-Dimensional Flow

Chapter 8. Calculations of an Optimal MHD Channel

2/3

USSR

VULIS, L. A., et al, Teoriya i raschet magnitogazodinamicheskikh techeniy v kanalakh, Atomizdat, 1971, 384 pp

Chapter 9. Nonstationary Flow in a Channel

Part Three. Calculation of Boundary Effects in the Channel

Chapter 10. Electric Field Distribution in the Channel

Chapter 11. Calculation of Processes Near the Electrodes

Chapter 12. Plasma Flow in the Boundary Layer

Part Four. Some Special Problems

Chapter 13. The Effect of the Temperature Dependence of Conductivity

Chapter 14. Stability of a Low-Temperature Plasma

3/3

USSR

UDC 621.375.016.35(088.8)

USHEROVICH, B. G., MIRONOVICH, YU. R., GENKIN, I. M.

"Stabilized Amplifier"

USSR Author's Certificate No 259163, Filed 25 Apr 68, Published 23 Apr 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D133P)

Translation: This author's certificate introduces a stabilized amplifier containing a threshold element, filters and a DC amplifier. The amplifier is distinguished by the fact that in order to improve the reliability, a threshold element the output of which is connected to the input of the amplifier via another integrating circuit and an emitter repeater is connected to the output of the DC amplifier connected to the input of the level index via the integrating circuit.

1/1

USSR

6 UDC: 621.375.024(088.8)

USHEROVICH, B. G., MIRONOVICH, Yu. R., GENKIN, I. M., Central Planning and Design Office for Mechanization and Automation

"A DC Amplifier"

USSR Author's Certificate No 251010, filed 25 Apr 68, published 5 Feb 70 (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7D145 P)

Translation: The authors propose an amplifier which contains a threshold element made in the form of a Shmitt trigger. To reduce the drift voltage and provide self-tuning of the amplifier, its load impedance is shunted by series-connected semiconductor diodes and a capacitor. The input of the Shmitt trigger is connected in parallel with the load impedance.

1/1

USSR

UDC 534.322.3+534.83

BALITSKIY, F. YA., GENKIN, M. D., IVANOVA, M. A., SOKOLOVA, A. G.

"Problems of Modelling Acoustical Processes in Machines"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 89-97 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh503)

Translation: The problem of the acoustical diagnostics of gear trains -- in this case, of establishing a one-to-one correspondence between the state parameters (the gap and load) and the parameters of the vibration-acoustical signal -- is considered. The various states of the planetary reducer were modeled by establishing the different degrees of side play in gear in the range 0-0.3 mm. The spectral components of the vibration, the correlation function, and the differential range of the distribution of instantaneous values were studied as a function of the gap and load. A characteristic increase in the dispersion of the distribution function with the increase of these parameters was observed and studied. Authors abstract.

1/1

USSR

UDC 534.322.3+534.83

GENKIN, M. D., YELEZOV, V. G., YABLONSKIY, V. V.

"Methods for the Active Reduction of Vibrations With Mechanisms"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 70-88 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh502)

Translation: The effectiveness and stability of two systems for the active reduction of vibration are analyzed. The systems show promise for application in shockproof mechanisms over wide frequency ranges. The basic element in the system is an electromagnetic or electrodynamic vibrator controlled by an amplified signal from the vibration pickup or a dynamometer. The vibrator partially compensates for the vibration effects at the base in the shock absorber. 15 ref. Authors abstract.

1/1

- 12 -

USSR

UDC 534.322.3+534.83

BALITSKIY, F. YA., ~~GENKIN, M. D.~~, SERGEYEV, V. I.

"Problems in the Acoustical Diagnostics of Machines"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 109-116 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh505)

Translation: Several models of diagnosable systems are discussed: in particular, a model in the form of an n -pole with one (acoustical) output. It is shown that to solve the diagnostics problem of determining the state of the machine, it is necessary to know (on the basis of preliminary study) the correspondence between the parameters of the technical state and the parameters of the acoustical signal. Problems of technical diagnostics are considered as applied to such kinematic parameters as gear trains, bearings, and a piston-cylinder. Possible ways of developing acoustical diagnostics from the aspect of a directed search for most informative signs, the application of computers, and other means are discussed. 43 ref. Authors abstract.

1/1

- 43 -

USSR

UDC 534.2

BOBROVNITSKIY, YU. I., VASIL'YEV, M. V., GENKIN, M. D.

"Propagation of Waves Bending Over a Plate With a Periodic, Concentrated Load"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 24-27 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh476)

Translation: The dispersion equation is derived for flexural normal waves propagating over an unbounded plate to which additional loads with dynamic rigidity Z_n are fastened at periodically placed points. A function which is represented by an infinite series and which could not be identified with any of the known special functions enters into the dispersion equation. Dispersion surfaces are constructed. The case of mass loads is analyzed. 10 ref. Authors abstract.

1/1

USSR

UDC 534.322.3+534.83

BOBROVNITSKIY, YU. I., GENKIN, M. D., MOROZOV, K. D.

"A New Method of Acoustical Diagnostics"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 98-108 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh504)

Translation: A method for acoustical diagnostics of machines that uses a system of orthogonal functions to determine the diagnostics parameters is described. The theoretical basis of the proposed method is given and the basis for design of the diagnostic separation filter is explained. The case of the non-linear dependence of noise on the diagnostics parameter is discussed. The calculation of the parameters of the separation filter is generalized for simultaneous measurement of several diagnostic parameters. A model of the diagnostic device is described and Laguerre orthogonal functions are used. The results of a diagnostic experiment are presented which show the possibilities of the effective application of the proposed method in the diagnostics of mechanisms and machines. 36 ref. Authors abstract.

1/1

USSR

UDC 534.2

GENKIN, M. D., MASLOV, V. P.

"Transfer of Vibration Through a Sound Bridge"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 28-34 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh477)

Translation: The transfer of a flexural wave from one plate to another through a band rigidly fastened to both plates is discussed. The flexural wave propagates in one of the plates and enters the band at an arbitrary angle. Authors abstract.

1/1

USSR

UDC 534.322.3+534.83

GENKIN, M. D.

"Certain Problems in Machine Acoustics"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 3-10 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh501)

Translation: The fundamental problems in the new scientific trend in the general theory of machines, machine acoustics, are presented: methods for lowering the vibration-acoustical activity of machines, techniques and equipment for studying the properties of vibration-acoustical fields, and other problems of acoustical diagnostics of the quality and state of machines. Authors abstract.

1/1

- 40 -

USSR

UDC 534.2

GENKIN, M. D., GOLUBEV, V. S., MIGUN, YU. G., ORLOV, A. I.

"Technique and Equipment for Studying Three-Dimensional Oscillations of Rotating Parts of Reducer Installations"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 41-57 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh479)

Translation: A technique for using accelerometers to study three-dimensional vibrations of rotating parts consisting of solid bodies is presented in general form. The essence of the method consists of determining the components of translational and angular displacements of the part in a space of three measurements. These components are determined in a coordinate system connected with the part from readings of a group of accelerometers fastened to the parts in some way. Mathematically, the problem reduces to the solution of a system of algebraic equations defined by the readings of the instruments. Equipment errors in a transformation of coordinates are analyzed. Authors abstract.

1/1

- 39 -

USSR

UDC 534.2

GENKIN, M. D., TARKHANOV, G. V., CHISTYAKOV, A. G.

"Experimental Studies of Transverse and Torsional Oscillations of High Beams"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 35-40 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh478)

Translation: The results of an experimental study of the shapes and frequencies of the natural vibrations of two welded thin-walled beams of I-beam shape with a ratio of length to height of 5.8 and 3.4 are presented for the frequency range 0-1000 Hz. The calculations made considering the shift and inertia of rotation of the transverse cross sections are in good agreement with experiment for the first three forms of the oscillations. Authors abstract.

1/1

USSR

UDC 534.2

GENKIN, M. D. YABLONSKIY, V. V.

"New Methods of Measuring the Parameters of Multidimensional Vibrations of Linear Mechanical Systems"

V sb. Dinamika i akustika mashin (Machine Dynamics and Acoustics -- Collection of Works), Moscow, "Nauka", 1971, pp 58-69 (from RZh-Fizika, No 3, Mar 72, Abstract No 3Zh480)

Translation: New generalized methods are discussed for measuring the total mechanical resistance or dynamic compliance applicable to the analysis of linear multidimensional vibrations of mechanical systems under the action of multi-point and multidimensional force effects. A practical method is proposed for measuring parameters with the aid of six or eight vibration pickups placed on each "rigid surface" so that the vibrator acts with a concentrated source on six or eight points of the area in turn. A diagram is given of a multichannel complex of equipment for determining frequency characteristics and the mutual vibration spectrum of complex mechanical systems. Some instruments of the complex are briefly described. Authors abstract.

1/1

OPTIMIZATION IN THE THEORY OF MACHINES, USING THE LP-SEARCH METHOD

UDC 518.1

17 Dec 71

Article by Academician I. I. Arkhipovskiy, N. D. Genkin, V. K. Grinkevich, I. M. Sobol, and B. R. Znamenskiy, Scientific Research Institute of Machine Control, Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 6, 1971, pp 1287-1290

The problems of optimum planning are particularly pressing under series production conditions and in the designing of expensive experiments.

Optimum planning includes both a search for a design plan (and its corresponding parameters) according to the given quality criteria and the creation of new mathematical methods that consider the specifics of complex multiparametric and multi-criteria problems [1].

1. Instead of the concepts machine, mechanism, design, and so forth, we will introduce a nondimensional analog -- the model. For a given kinematic structure and a degree of freedom, the model is determined by the point $\alpha = (\alpha_1, \dots, \alpha_n)$ of the n -dimensional parallelepiped $(\alpha \in G)$

$$0 \leq \alpha_i \leq 1, \quad 1 \leq i \leq n, \quad (1)$$

where α_i, α_j are the limits of the permissible variations of the model's parameters. Various additional limitations on the system's behavior isolate some closed section G in parallelepiped (1); we consider its volume to be positive.

If the quality of the model is determined by a function $\phi(\alpha)$ (the quality criterion), which is defined in G , then we call that model α^* , such that $\phi(\alpha^*) = \sup_{\alpha \in G} \phi(\alpha)$, an optimum model.

Let us agree to write $\phi(\alpha)$, if $\phi(\alpha)$ is defined in G .

Let us examine the basic types of optimization problems that arise in the theory of machines.

Machine Control

GENKIN, M. D.

USSR

UDC 624.07:534.1

BOBROVNITSKIY, Yu. I., GENKIN, M. D., MASLOV, V. P.

"Oscillations of an Infinite Lattice of Strings"

V sb. Vibroakust. aktivnost' mekhanizmov s zubchatymi peredachami (Vibro-acoustic Activity of Mechanisms with Geared Transmissions), Moscow, "Nauka", 1971, pp 197-204 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10V174)

Translation: A study is made of the propagation of normal waves in an infinite string lattice, and its Green's function. Alternating bands of transmission and nontransmission take place when the lattice waves propagate in different directions. It is shown that the boundaries between these bands are the natural frequencies of a single repeated cell of the lattice. Forced oscillations of the lattice under the effect of an arbitrary external load are computed by means of the Green's function. The Greens function is found in the form of a double integral which is not expressed in terms of the unknown functions. The asymptotic behavior of this function is investigated. It is found in particular that the wave amplitude always falls off in inverse proportion to the square root of

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USSR

BOBROVNITSKIY, Yu. I. et al., Vibroakust. aktivnost' mekhanizmov s zub-
chatymi peredachami, Moscow, "Nauka", 1971, pp 197-204

the distance from the source. An equation is also found for the save
front of a point source. In addition, the input compliance of the lattice
is computed. This quantity is expressed in terms of entirely elliptical
integrals of the first kind. Authors' abstract.

2/2

- 80 -

Optimization

USSR

UDC 518.1

ARTOBOLEVSKIY, I. I., Academician, ~~GENKIN, M. D.~~, GRINKEVICH, V. K., SOBOL', I. M., and STATNIKOV, R. B., State Scientific Research Institute of Mechanical Engineering, Moscow

"Optimization in Machine Theory by LP-Search"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 6, 1971, pp 1287-1290

Abstract: The principal types of optimization problems occurring in machine theory are optimal analysis problems, optimal synthesis problems, and best approximation problems. They are all multiparametric and the use of classical methods of the calculus of variations is, as a rule, impossible. A global search is necessary. An "independent" random search (Monte Carlo method) permits the simultaneous optimization of all criteria that are of interest. The selection of the decision or compromise criterion can be made during the "man-machine" dialogue. Further improvement of the model (if it is required) is possible by using local search methods, which usually converge in the neighborhood of the extremum. The authors suggest that, instead of a random search, its deterministic analog -- an LP-search -- be used. It has led to much

1/2

USSR

ARTOBOLEVSKIY, I. I., et al., Doklady Akademii Nauk SSSR, Vol 200, No 6, 1971, pp 1287-1290

better results than the random search in a number of complex problems, with the number of samples reduced 2-4 times. The article describes the scheme for the LP-search and considers the example of an oscillatory system with three degrees of freedom, in which it is necessary to find the model with the minimum length and the model with the maximum difference between the first and second natural frequencies subject to restrictions.

2/2

- 137 -

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17 MAR '72

IRREGULARITY OF LOADING OF SATELLITES OF PLANETS
N.C.
[Article by E. I. Arzhanov, N. G. Gorkin, H. A. Glushkova, Moscow, Russian,
Vibroakusticheskaya Akademiya, Nakhimovskiy Zubchatyml Pereuchnik,
1971, pp 66-85]

1971. pp 66-85]

$$K_{ij} = P_{max}/P_{i,j}$$

where p_{\max} is the maximum load on one of the satellites; p_{av} is the average

Satellite loading irregularity is determined by the errors of manufacture and mounting of gears and is not, in the general case, constant in time. Converting to deformations in gear meshing we write the formula

$$\kappa_{ir} = \beta_{\max} / \delta_{av} = 1 + (\Delta \tau_{ef} / \delta_{av}), \quad (2)$$

where δ_{max} is the maximum deformation in the gears of one of the satellites; δ_{avg} is the average (calculated) deformation in the gears of a satellite with Z teeth; $\delta_{\text{max}}^{\text{calc}}$ is the maximum calculated deformation in the gears of one of the satellites; $\delta_{\text{avg}}^{\text{calc}}$ is the average calculated deformation in the gears of a satellite with Z teeth; $\delta_{\text{max}}^{\text{exp}}$ is the maximum experimental deformation in the gears of one of the satellites; $\delta_{\text{avg}}^{\text{exp}}$ is the average experimental deformation in the gears of a satellite with Z teeth; $\delta_{\text{max}}^{\text{exp}} - \delta_{\text{max}}^{\text{calc}}$ is the maximum experimental meshing error; $\delta_{\text{avg}}^{\text{exp}} - \delta_{\text{avg}}^{\text{calc}}$ is the average experimental meshing error.

Primary errors can be divided in terms of their influence on meshing into two basic groups. The effect of the first group of errors in bearings leads to the radial wobble of gear rims, eccentric mounting of gears in bearings, errors in radial wobble of gear rims, eccentric mounting of gears in bearings, does not remain constant in time, but depends on the mutual location of the parts of the planetary mechanism. The influence of the second group of primary errors (errors in the location of borings for the satellites in the sun wheel, gaps between the satellites and satellite axes, between the sun wheel, gaps between the satellites and satellite axes, between the satellite axes and sun wheel borings, errors in thickness of satellite

GENKIN, M.D.

power mechanics

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17 MAR 72

VIBRO-ACOUSTIC ACTIVITY OF MECHANISMS WITH GEAR TRANSMISSIONS

A.C. 1964 Moscow

Article by M. D. Genkin, Vibroakusticheskaya Aktivnost' Mechanizmov s Zubchatymi Peredachami, Russian, 1972, pp 7-13

The dynamic interaction of parts of machines (mechanisms) gives rise to vibratory energy. This energy, propagating from this source of vibrations within the machine, is emitted into the environment and creates what we know as the sonic field (noise) of the machine and is also transmitted to connected parts -- base of the machine, foundation -- through shock absorbers, assemblies connected to the machine, and is manifested as vibration of parts of assemblies, connecting and supporting parts.

Accordingly the following steps can be taken to solve the problem of decreasing the intensity of noise and vibrations in machinery:

1. strive to reduce the level of vibratory energy generated by the source (decrease its vibro-activity);

2. take measures to reduce the intensity of vibrations in their path of propagation;

3. Finally, take action on the process of emission and transmission of vibrations to connected parts, i.e., reduce their vibro-acoustic activity.

The level of vibratory energy generated by the source and the character of corresponding vibratory processes are determined, as already stated, by the dynamic interaction of reacting parts of the machine by stimulation in the source and by features of the dynamic execution of these parts -- inertial-rigidity parameters, losses in the system, etc.), which predetermine the "degree of reallocation" (conversion to energy) of this stimulation. Naturally the parameters of bearing (supporting) parts of the machine have a definite effect on the properties of its working parts, but it is also worthwhile to undertake successive investigation of the entire process of noise and vibration emission (with further general matching and arranging of the entire design).

GENKIN, M.D

POWER MECHANICS

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17 Nov 72

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MECHANISM AS A MULTIPOLAR VIBRATION GENERATOR

Article by M. D. Genkin, V. V. Yablonskiy, Moscow, Vybrosnitschekaya
 Aktivost' Mekhanizmov s Upravlennymi Peremennymi, Russian, 1971, pp 161-167

The character of propagation of vibrations from their source -- mechanism -- to its supports and then through shock absorbers to the foundation in the form of structural noise depends on the general and local structure of each "subsystem" of the mechanism, shock absorbers and foundation, on the character of their connection and on frequency. The effect of these factors on the vibratory energy, determining the vibro-activity of the mechanism [1], must be analyzed by combining experimental analysis of the subsystems themselves with calculation methods of evaluating their interaction. For this purpose it is convenient to view a system as a chain of three mechanical networks: active source (3), passive transition component (2) and load (1) (Figure 1). The subsystems are connected to each other by rigid couplings. Each "cross" section of these couplings is characterized by n-variate vectors of forces of interaction F_i and also of velocities V or other dynamic variables. Restricting the study to the case of low harmonic vibrations, we will assign the vectors as columns of complex amplitudes of vector coordinates in a n-variate space of known base.

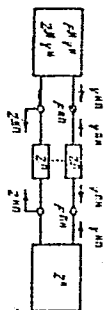


Figure 1. Mechanism, shock absorbers and foundation as a system of networks.
 $[A = s; B = p; H = Z]$

Sykes [2] and Rubin [3] examined the parameters in general form of active and passive networks and some matrix expressions giving the vectors F and V in sections according to the given parameters. In order to calculate the vibrations of real engineering systems it is necessary to select the principle of reduction of subsystems to a network, relate the equivalent parameters of the mechanism with the exciting forces and parameters of the internal structure. It is necessary, moreover, that all basic relations be derived for vibration of the source-shock absorber-load system in addition to those found in Sykes' work [2].

Defect

Article by N. D. Goshin

Aktivnost' Mokinim zmov s Zubčatymi Peredščami, S. Ia. Inženier, Moscov. Vstroikustičeskaja Russiia. 1971, pp 15

Vibrations in the hulls of ships and their power plants, caused by longitudinal vibrations of the shafting, are most hazardous during resonant vibrations with frequencies of the first three and even the fourth natural forms.

A common way of decreasing vibrations is to choose systems parameters that will remove the resonance vibrations from the working rpm range. Analysis of the parameters of several systems indicates that for engines operating in a wide rpm range it is not always possible to detune from the resonances by this method. Presented in Figure 1, for example, are the resonances of natural frequencies of longitudinal vibrations of the shafting (shaded), determined for one ship, for possible variations of its parameters: rigidity of main bearing, etc. The bottom zone corresponds to vibrations of the first natural form and the top to vibrations of the second. The sloping lines denote the various harmonic components of the forces of excitation for screws with different numbers of blades. The passage of such a line through the shaded region corresponds to the resonance of a machine. It follows from Figure 1 that the number of resonance harmonics in the working rpm range is large. The situation is about the same for most other ships. This necessitates the development of special systems that reduce the level of longitudinal vibration of the shafting. Examined below is the possibility of using two systems for these purposes: a hydraulic damper and a resonance converter.

Evaluation of Possibility of Using Hydraulic Dampers for Reducing the Level of Resonant Longitudinal Vibrations of Machine Shafts

We will determine the possible geometric parameters of hydraulic vibration dampers installed on a ship to reduce to some tolerable level the magnitude of dynamic forces transmitted to the hull of a ship during longitudinal resonant vibrations of this ship. A dynamic model of the

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF AN OPTICAL ARRANGEMENT FOR NARROWING TO ONE LONGITUDINAL MODE THE EMISSION SPECTRUM OF AN ELECTROOPTICALLY Q SWITCHED RUBY LASER, USING A SPECIAL POLARIZATION ELEMENT WHICH SPLITS THE LASER RESONATOR INTO TWO CHANNELS. ONE EMISSION LINE WAS OBTAINED WITH A SPECTRAL WIDTH OF NOT MORE THAN 150 MHZ; EMISSION SPECTRA ARE ILLUSTRATED FOR BOTH CHANNELS SEPARATELY AND TOGETHER.

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